

What is claimed is

1. A method of manufacturing a flexible wiring board, with a substrate, wherein the flexible wiring board comprises a reference conductive layer; a first base film provided on said reference conductive layer; and a first surface conductive layer provided on said first base film, the method comprising:

forming a first hole penetrating said first surface conductive layer and said first base film so that said reference conductive layer is exposed on its bottom and said first base film is exposed on an inner peripheral side face;

depositing, by electroless plating, a first electroless plating layer on at least a surface of said first base film exposed on the inner peripheral side face of said first hole;

growing, by electrolytic plating, a first electrolytic plating layer on a surface of said first electroless plating layer so as to fill said first hole with said first electrolytic plating layer; and

removing said first electrolytic plating layer and said first electroless plating layer provided on said first surface conductive layer so as to expose said first surface conductive layer.

2. The method of manufacturing a flexible wiring board according to claim 1, wherein said first surface conductive layer is a metal foil and adhered to said first base film.

3. The method of manufacturing a flexible wiring board according to claim 1, wherein said reference conductive layer is brought into contact with an electrode when said electrolytic plating is conducted.

4. The method of manufacturing a flexible wiring board according to claim 1, further comprising the step of depositing an auxiliary electrolytic plating layer by electrolytic plating on a surface of said reference conductive layer, exposed on the

bottom of said first hole, prior to said step of depositing said first electroless plating layer.

5. The method of manufacturing a flexible wiring board according to claim 4, wherein growth of said auxiliary electrolytic plating layer is terminated before the auxiliary electrolytic plating layer reaches said first surface conductive layer.

6. The method of manufacturing a flexible wiring board according to claim 1, further comprising the step of patterning said first surface conductive layer after said step of exposing the first surface conductive layer.

7. The method of manufacturing a flexible wiring board according to claim 6, further comprising the steps of:

providing a second base film and a second surface conductive layer on said patterned first surface conductive layer;

forming a second hole penetrating said second surface conductive layer and said second base film so that said first surface conductive layer is exposed on its bottom and said second base film is exposed on its inner peripheral side face;

depositing, by electroless plating, a second electroless plating layer on at least a surface of said second base film exposed on inner peripheral side face of said second hole; and

growing, by electroless plating, a second electrolytic plating layer on a surface of said second electroless plating layer so as to fill said second hole with said second electrolytic plating layer.

8. The method of manufacturing a flexible wiring board according to claim 7, wherein said second surface conductive layer is a metal foil and adhered onto said second base film.

9. The method of manufacturing a flexible wiring board according to claim 7, further comprising the step of patterning said second surface conductive layer.

10. The method of manufacturing a flexible wiring board according to claim1, further comprising the steps of:

providing a third base film and a third surface conductive layer on the surface of said reference conductive layer, opposite to the side where said first base film is provided;

forming a third hole penetrating said third surface conductive layer and said third base film so that said reference conductive layer is exposed on its bottom and said third base film is exposed on its inner peripheral side face;

depositing, by electroless plating, a third electroless plating layer on at least a surface of said third base film, exposed on inner peripheral side face of said third hole;

growing, by electrolytic plating, a third electrolytic plating layer on a surface of said third electroless plating layer so as to fill said third hole with said third electrolytic plating layer; and

removing said third electrolytic plating layer and said third electroless plating layer provided on said third surface conductive layer so as to expose said third surface conductive layer.

11. The method of manufacturing a flexible wiring board according to claim 10, further comprising the step of patterning said third surface conductive layer.

12. A method of manufacturing a flexible wiring board, with a substrate, wherein the wiring board comprises a reference conductive layer; a first base film provided on said reference conductive layer; and a first surface conductive layer provided on said first base film, the method comprising:

forming a first hole penetrating said first surface conductive layer and said first base film so that said reference conductive layer is exposed on its bottom and said first base film is exposed on an inner peripheral side face;

depositing, by electroless plating, a first electroless plating layer on at least a surface of said first base film exposed on the inner peripheral side face of said first hole;

growing, by electrolytic plating, a first electrolytic plating layer on a surface of said first electroless plating layer so as to fill said first hole with said first electrolytic plating layer and then providing said electroless plating layer and said electrolytic plating layer on said first surface conductive layer to form a first surface coating layer;

etching said first electrolytic plating layer so as to reduce a thickness of said first surface coating layer on said first base film; and

forming a patterned resist film on a surface of said first surface coating layer having a reduced thickness and then removing said first surface coating layer situated on a bottom of an opening of said resist film so as to pattern said first surface coating layer.

13. The method of manufacturing a flexible wiring board according to claim 12, wherein said first surface conductive layer is a metal foil and is adhered to said first base film.

14. The method of manufacturing a flexible wiring board according to claim 12, wherein said reference conductive layer is brought into contact with an electrode when said electrolytic plating is conducted.

15. The method of manufacturing a flexible wiring board according to claim 12, further comprising the step of depositing an auxiliary electrolytic plating layer by electrolytic plating on a surface of said reference conductive layer, exposed on the bottom of said first hole, prior to said step of depositing the first electroless plating layer.

16. The method of manufacturing a flexible wiring board according to claim 15, wherein growth of said auxiliary electrolytic plating layer is terminated before said auxiliary

electrolytic plating layer reaches said first surface
conductive layer.

17. The method of manufacturing a flexible wiring board
according to claim 12, further comprising the steps of:

5 providing a second base film and a second surface
conductive layer on said patterned first surface coating layer;

forming a second hole penetrating said second surface
conductive layer and said second base film so that said first
surface coating layer is exposed on its bottom and said second
10 base film is exposed on its inner peripheral side face;

depositing, by electroless plating, a second electroless
plating layer on at least a surface of said second base film
exposed on inner peripheral side face of said second hole; and

growing, by electrolytic plating, a second electrolytic
15 plating layer on a surface of said second electroless plating
layer so as to fill said second hole with said second
electrolytic plating layer.

18. The method of manufacturing a flexible wiring board
according to claim 17, wherein said second surface conductive
20 layer is a metal foil and adhered to said second base film.

19. The method of manufacturing a flexible wiring board
according to claim 17, further comprising the step of
patterning said second surface conductive layer.

20. The method of manufacturing a flexible wiring board
25 according to claim 17, further comprising the steps of:

providing a third base film and a third surface
conductive layer on the surface of said reference conductive
layer opposite to the side where said first base film is
provided;

30 forming a third hole penetrating said third surface
conductive layer and said third base film so that said
reference conductive layer is exposed on its bottom and said
third base film is exposed on an inner peripheral side face;

depositing, by electroless plating, a third electroless plating layer on at least a surface of said third base film exposed on the inner peripheral side face of said third hole;

growing, by electrolytic plating, a third electrolytic plating layer on a surface of said third electroless plating layer so as to fill said third hole with said third electrolytic plating layer; and

removing said third electrolytic plating layer and said third electroless plating layer provided on said third surface conductive layer so as to expose said third surface conductive layer.

21. The method of manufacturing a flexible wiring board according to claim 20, further comprising the step of patterning said third surface conductive layer.